Mighty mice point to stem cell therapy for muscle diseases and aging

Posted: November 15, 2010

Created: 15/11/2010 - 14:57

The L.A. Times gave it's rodent of the week designation to a mighty mouse produced by University of Colorado, Boulder researchers.

The group transplanted muscle stem cells from healthy mice into mice with damaged muscles. Not only did the muscle stem cells spring to action, repairing the damaged muscle, but they maintained the mouse in its newly bulked up state for its entire two-year lifespan.

The Telegraph quotes lead author Bradley Olwin as saying:

> "We found that the transplanted stem cells are permanently altered and reduce the ageing of the transplanted muscle, maintaining strength and mass."

"With further research we may one day be able to greatly resist the loss of muscle mass, size and strength in humans that accompanies ageing, as well as chronic degenerative diseases like muscular dystrophy."

In their story, the L.A. Times points out that the stem cells came from young mice and were implanted into similarly young mice. Other research by CIRM grantee Irina Conby at University of California, Berkeley has found that the environment in older mice somehow inhibits muscle stem cells from repairing damaged muscle (here's a blog entry on her work). Likewise, bathing muscle stem cells from older mice in the blood of young mice seems to rejuvenate the cell's ability to repair tissue.

The issue of aging and environment is an important one when looking at transplantation of adult stem cells. Where the cells are implanted could play an important role in how well the cells repair damage. (You can read more about aging and stem cells in this story from Stanford University.)

As a runner prone to muscle damage and whose clock is relentlessly ticking, I'll be watching for researchers to figure out what it is that allows the transplanted stem cells to flourish and prevent aging in mice. And I can only hope the answer is not that I have to remain young for my muscle stem cells to thrive.

A.A.

Tags: muscular dystrophy, University of California Berkeley